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TRICUSPID ANNULAR PLANE SYSTOLIC EXCURSION: THE WELCOME PARAMETER

To the Editor:

We read with great interest the article recently published in the *Journal* by García Gígorro and colleagues¹ about the evaluation of right ventricular function (RVF) after cardiac surgery. In this article, they concluded that tricuspid annular plane systolic excursion (TAPSE) is a robust measure of RVF. In our opinion, however, several questions about this matter still remain in the air.

As previous studies have shown, after cardiac surgery TAPSE is reduced in the context of otherwise normal overall RVF. Our first question, therefore, is this: which is the normal TAPSE value that we should consider in this context? Still another question unsolved is this: are there differences between off-pump and on-pump coronary artery bypass grafting?²

Otherwise, the evaluation of RVF is essential not only for the correct hemodynamic management of critically ill and cardiac surgical patients but also for those patients with severe tricuspid regurgitation (TR), especially if surgical treatment is contemplated. Diagnostic criteria for surgical timing in cases of TR associated with left-sides valvulopathy are well known and perfectly defined by the scientific societies; however, surgical timing in cases of isolated TR is less well established.³ TAPSE is an easily measured parameter that can define RVF (Figure 1). A recent article by Sun and coworkers analyzed TAPSE values that could predict mortality and morbidity in patients who underwent isolated tricuspid valve surgery.⁴ Although it is a small study with few patients, it highlights the need for further prospective trials to define better the RVF cutoff values for surgery in cases of TR. TAPSE is a noninvasive and easily measured echocardiographic parameter that, in view of these 2 research studies, could, together with other clinical factors, be extremely useful before tricuspid valve surgery to improve its diagnostic approach, prognosis, and selection of surgical timing.

FIGURE 1. Tricuspid valve annular plane systolic excursion by M-mode echocardiography.

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THE TRICUSPID ANNULAR PLANE SYSTOLIC EXCURSION STRIKES BACK

Reply to the Editor:

With great interest, we read the Letter to the Editor titled “Tricuspid Annular Plane Systolic Excursion: The Welcome Parameter.” In this letter, the authors comment on our article,¹ and they ask about different aspects of the importance of tricuspid annular plane systolic excursion (TAPSE) after cardiac surgery. We thank the authors for

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their interest in our publication and would like to respond to their letter.

A reduction in TAPSE after cardiac surgery is a well-known phenomenon²; however, the normal value of TAPSE in this context is still unclear. This reduced measurement may reflect postoperative changes in right ventricular (RV) contractile patterns, with a relative loss of longitudinal shortening with respect to transverse shortening, as has been previously documented.³ The reasons for those observed changes have not been elucidated. Nevertheless, the type of cardiac surgery, beyond the complete pericardial incision or the use of cardiopulmonary bypass, could be an important factor related to those changes in the manner in which the RV contracts. Unlike in previous studies, which excluded patients who underwent valvular surgery,³ our study included several types of cardiac surgery. However, we must admit a selection bias in our study, because patients included were those who received a pulmonary artery catheter. This subgroup of patients usually have not only worse left ventricular function but also higher rates of RV dysfunction, such as our patients after heart transplantation when TAPSE and RV ejection fraction were particularly low compared with other surgeries; our results are similar to the findings of the previous study.³ With respect to differences between off-pump and on-pump surgery in our results, the present study included only 4 patients without cardiopulmonary bypass; thus, we are not able to respond to this question. In fact, only 8% of coronary artery bypass graft surgeries were performed without using cardiopulmonary bypass in our center during the study period. These unresolved questions might emphasize the importance of future studies in patients who have undergone cardiac surgery to define the reference values of TAPSE and its prognostic significance probably in both different clinical conditions and different cardiac surgical procedures.

The utility of TAPSE in the evaluation of RV function in patients with severe tricuspid regurgitation has already been demonstrated. In addition, the preoperative measurement of TAPSE also had a prognostic value in patients who underwent isolated tricuspid valve surgery.⁴ However, the utility of TAPSE that is obtained during the early postoperative period after tricuspid valve surgery should still be prospectively validated for the assessment of RV function. We have reviewed our data and confirmed that there were no cases of tricuspid valve repair in our series of patients.

Evaluation of RV function is essential in the management of critically ill cardiac patients. We want to encourage the use of echocardiography for routine assessment of RV systolic function in the postoperative period after cardiac surgery.

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THREE ARTERIES VERSUS THE SAPHENOUS VEIN FOR CORONARY ARTERY BYPASS GRAFT: WHY USE A DAMAGED GRAFT TO REPAIR A DAMAGED HEART?

To the Editor:

The recent study published in the *Journal* by Benedetto and colleagues¹ was on a large patient population aiming to establish whether the radial artery (RA), as a third arterial conduit in addition to the bilateral internal thoracic artery (BITA), is associated with better survival than the saphenous vein (SV). The authors conclude that long-term survival in these patients undergoing BITA grafting was not extended using the RA as the third arterial conduit in preference to SV in patients undergoing first-time coronary revascularization. The authors focus on the three main vessels used for revascularization, but the methods used when harvesting in coronary artery bypass graft (CABG) might also be considered. In their study, it seems that the internal thoracic artery (ITA) and RA were both used as pedicled grafts, whereas the pedicle of the SV was removed and the vein distended. The additional trauma inflicted on the SV, when compared with the arteries, may well affect its long-term patency.

SV graft performance is improved when harvested using an atraumatic, no-touch technique with a patency comparable with the ITA at up to 16 years follow-up.² SV prepared in this way maintain their normal architecture with a surrounding cushion of perivascular fat and adventitia preserved and the endothelium intact.³ There are striking,